GEM Portal User Validation Document

Introduction

This document is intended to serve as a supplement to the Portal User's Guide, available from:
http://www-aig.jpl.nasa.gov/public/dus/quakesim/PortalExample.doc.

Readers should refer to this document.

Validating GeoFEST Execution

Users need to verify GeoFEST execution through the portal at three different stages:

- Mesh generation information ("Create an Initial Mesh" above) may be provided to ensure proper GeoFEST input creation.
- GeoFEST output data files may be compared to a test output value.
- The user-generated RIVA movie may be visually compared with a sample movie.

Users may validate the demonstration portal using the Northridge fault and layer information available from the Fault Database. Following the instructions above, users should create an initial project and add the layers "NorhridgeAreaMantle", "NorthridgeAreaMidCrust", and "NorthridgeAreaUpper". The user should also add the fault "Northridge2" from the Fault database. Note that the layers must be added in the specified order for the demonstration, but the fault may be added at any time.

Validating GeoFEST Mesh Generation

After setting up the Northridge problem, the user should launch the mesh generator and refine the mesh (see Figure 9 of the User's Guide). Users should refine the mesh until the number of elements with substantial priority drops to a small fraction of the total number of elements.

Users should next generate an initial mesh with the default parameters and perform one mesh refinement. The mesh refinement output in the browser text area (Figure 9) can be compared with the downloadable test results, http://www.servogrid.org/slide/GEM/Interop/MeshRefineValidInit.txt. The user should then continue to refine the mesh until the results match the contents of http://www.servogrid.org/slide/GEM/Interop/MeshRefineValidFinal.txt. In particular, the final line of the output should be the

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Validating GeoFEST Output

The user should next use the generated mesh input and execute GeoFEST through the portal. In the portal prototype, GeoFEST is executed on the host danube.ucs.indiana.edu. After GeoFEST completes execution (which takes approximately 45 minutes on danube), the user can download the output by selecting the "danube" tab and the clicking the "download" icon next to their output file's name. Users provide a name for their output file in the forms shown in Figure 10. It is recommended that the user change the output file name from the default value to prevent output from being overwritten.

User-generated output can be compared to the validation output, available from http://www.servogrid.org/slide/GEM/Interop/GeoValidate.out.

Validating GeoFEST MPEG Visualizations

The MPEG visualization of the GeoFEST simulation of the Northridge Fault may be visually compared to the validation movie, http://www.servogrid.org/slide/GEM/Interop/GeoFESTValidation.mpeg.